

CLAIMS

1. A method of detecting an emitter signal, comprising acts of:
  - a) receiving a scan strategy to detect at least one emitter, the scan strategy
  - 5 comprising a plurality of dwells;
  - b) simulating a scan of an emitter; and
  - c) evaluating the performance of at least one of the plurality of dwells of the scan strategy based on the scan of the emitter.
- 10 2. The method of claim 1, wherein the act b) further comprises an act of:  
simulating the scan of an emitter using real antenna data.
3. The method of claim 1, wherein the act b) further comprises an act of:  
simulating the scan of an emitter using a propagation model.
- 15 4. The method of claim 1, wherein the act c) further comprises an act of:  
dividing a frequency range of the emitter into a plurality of discrete frequency pieces, each respective frequency piece being defined by a unique combination of dwells from the plurality of dwells that cover a frequency range of the respective frequency piece.
- 20 5. The method of claim 5, further comprising acts of:  
for at least one frequency piece of the plurality of frequency pieces, determining the dwells of the unique combination of dwells that cover the frequency piece; and  
generating a set of time-to-intercept values that for a dwell of the unique
- 25 combination of dwells against the emitter.
6. The method of claim 5, wherein the act of generating the time-to-intercept values further comprises:  
performing a series of simulations to determine the set of time-to-intercept values
- 30 for the dwell against the emitter, wherein an initial time of execution of the dwell with respect to the scan of the emitter is varied in at least some of the trials.

7. The method of claim 6, wherein the act of performing a series of simulations further comprises factoring in scenario assumptions into the simulation.

8. The method of claim 7, wherein the scenario simulations include at least one of altitude, velocity, and utilization.

9. The method of claim 5, further comprising an act of:  
generating probability of intercept statistics and mean time to intercept statistics based on the time-to-intercept values.

10. A computer-readable medium, having encoded thereon computer instructions which when executed by a computer system cause the computer system to perform a method comprising acts of:

- a) receiving a scan strategy to detect at least one emitter, the scan strategy comprising a plurality of dwells;
- b) simulating a scan of an emitter; and
- c) evaluating the performance of at least one of the plurality of dwells of the scan strategy based on the scan of the emitter.

11. The computer-readable medium of claim 10, wherein the act b) further comprises an act of:

simulating the scan of an emitter using real antenna data.

12. The computer-readable medium of claim 10, wherein the act b) further comprises an act of:

simulating the scan of an emitter using a propagation model.

13. The computer-readable medium of claim 10, wherein the act c) further comprises an act of:

dividing a frequency range of the emitter into a plurality of discrete frequency pieces, each respective frequency piece being defined by a unique combination of dwells from the plurality of dwells that cover a frequency range of the respective frequency piece.

14. The computer-readable medium of claim 13, wherein the method further comprises acts of:

for at least one frequency piece of the plurality of frequency pieces, determining  
5 the dwells of the unique combination of dwells that cover the frequency piece; and  
generating a set of time-to-intercept values that for a dwell of the unique  
combination of dwells against the emitter.

15. The computer-readable medium of claim 14, wherein the act of generating the  
10 time-to-intercept values further comprises:

performing a series of simulations to determine the set of time-to-intercept values  
for the dwell against the emitter, wherein an initial time of execution of the dwell with  
respect to the scan of the emitter is varied in at least some of the trials.

16. The computer-readable medium of claim 15, wherein the act of performing a series  
15 of simulations further comprises factoring in scenario assumptions into the simulation.

17. The computer-readable medium of claim 16, wherein the scenario simulations  
include at least one of altitude, velocity, and utilization.

20 18. A receiver system for detecting an emitter signal comprising:  
a memory having stored therein a scan strategy, the scan strategy having been  
evaluated by a system that performs acts of:

a) receiving a scan strategy to detect at least one emitter, the scan strategy  
25 comprising a plurality of dwells;  
b) simulating a scan of an emitter; and  
c) evaluating the performance of at least one of the plurality of dwells of the scan  
strategy based on the scan of the emitter.

30 19. The receiver system of claim 18, wherein the act c) further comprises an act of:

dividing a frequency range of the emitter into a plurality of discrete frequency pieces, each respective frequency piece being defined by a unique combination of dwells from the plurality of dwells that cover a frequency range of the respective frequency piece.

- 5    20.    The receiver system of claim 19, wherein the system further performs acts of:  
for at least one frequency piece of the plurality of frequency pieces, determining the dwells of the unique combination of dwells that cover the frequency piece; and  
generating a set of time-to-intercept values that for a dwell of the unique combination of dwells against the emitter.